

COAL MINING

July, 1955

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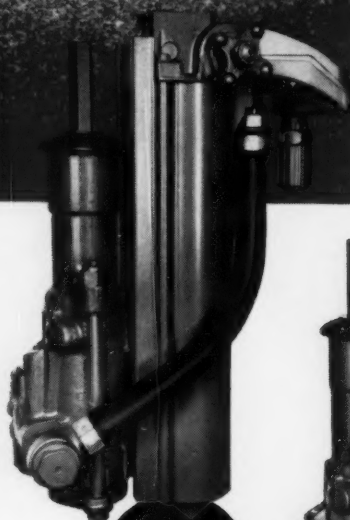
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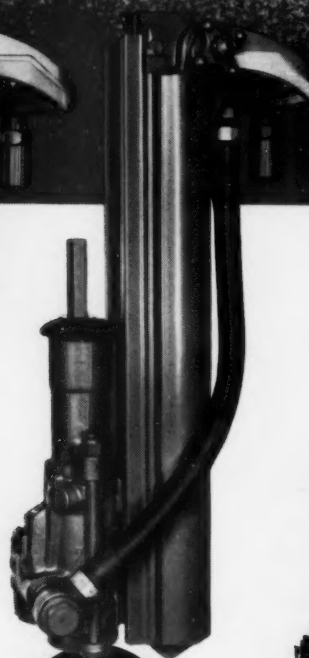
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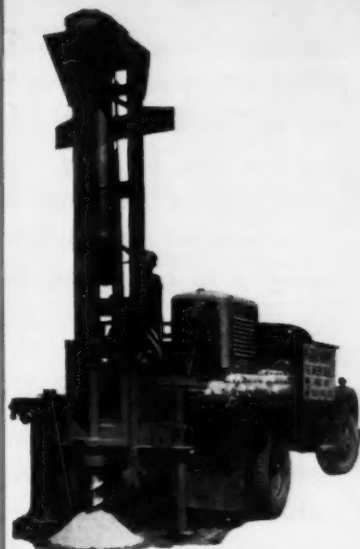
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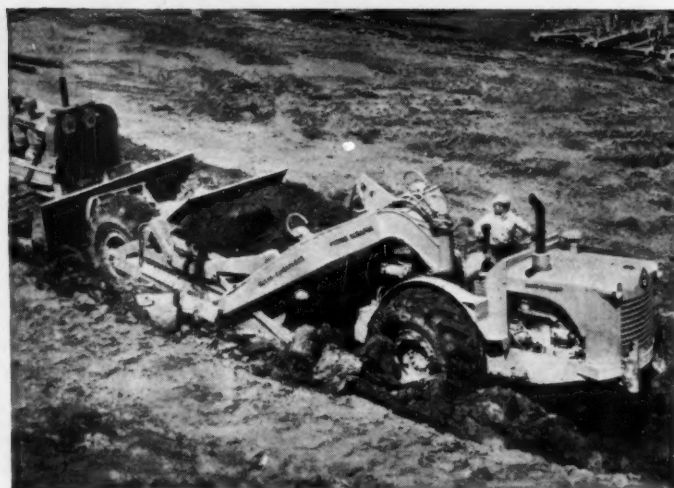
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TODAY'S demands on mining production require the selection of equipment of the broadest versatility. Allis-Chalmers offers a complete range of material moving and handling equipment — including four sizes of diesel crawler tractors, motor graders, pull scrapers, high-speed Motor Scrapers and Motor Wagons — designed to fit your particular mining applications and to deliver the highest possible output.

Here are some on-the-job views with a few of the many ways in which these modern machines are speeding production and lowering costs.

Hauls rock overburden. TR-200 Motor Wagon body is interchangeable with TS-200 Motor Scraper body. Unit travels fast "off-road" with capacity loads . . . dumps clean every time with 18-ton, hydraulic-controlled rear-dump body. Sides channel-ribbed for rigidity.



Strips overburden. 13-yard heaped capacity TS-200 Motor Scraper also loads, hauls material from open pit . . . clears and levels for camp sites and drill setups . . . levels and grades building sites . . . hauls in supplies. Larger 18-yard heaped capacity TS-300 also available.



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COAL MINING

XXXII July 7
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Contents

Do You Know	4
Here and There in the Coal Industry	4
Miners Lamps at Emerald Mine	5
Annual Banquet of the Johnstown Branch of the Electro-Mechanical Maintenance Association	13
New Coal Mine for Kentucky	15
Eastern Ohio Coal Operators Meet for Golf	16-17
Advertisers' Index.....	Back Inside Cover



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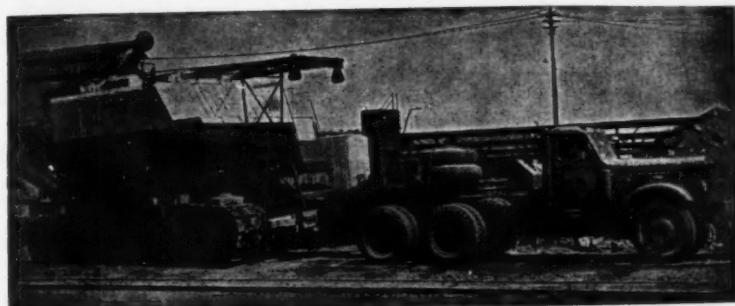
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SALEM, OHIO, U.S.A.

Do You Know?

• A new medical society of experts working on internal "spare parts" of the human body held its first meeting in Atlantic City recently.

The organization is the American Society for Artificial Internal Organs. Members are those scientists who have pioneered the development and use of such life-saving devices as artificial kidneys and heart-lung machines.

These men are widely scattered in various fields of medicine and have heretofore had no common meeting ground for presenting and discussing new work in the field and for establishing criteria for determining training and competence of those wanting to come into this field of special medical practice.

They have discussed new uses for artificial kidneys and a new artificial internal organ, the artificial uterus. This, according to the temporary secretary of the society, is "only a semi-theoretical conception" and has not yet been brought to practical use.

• Tests to show which persons should use their brains and not their backs in making a living are advised by Drs. Rex L. Diveley and Rial R. Oglevie of Kansas City, Mo.

The tests consist of careful examination of the back, including X-ray pictures. The Kansas City doctors advise them even for teen-agers, so that youngsters can be advised early to go into suitable occupations where they will not be putting too much strain on backs that cannot take it.

Of more than 6,000 persons given pre-employment examinations, only 39.9% had what could be called normal backs, the doctors reported at the meeting held recently by the American Medical Association. The rest had congenital abnormalities, spinal arthritis, postural defects and other adverse spinal conditions that made them susceptible to low back injury or disability.

As a result of such examinations, the doctors said, industries can be saved compensation claims and workers can be saved time lost, not to mention the aching backs.

• Four-piece lunch kit made up of individual, sealed containers molded of polyethylene and holds a variety of foods. The portable lunch kit includes a sandwich box, pie container, portion dish and small jar. After carrying the food without fear of spilling or crushing, a diner can eat right out of the containers.

• Artists' tools used by a previously unknown people who lived in the Old Stone Age just after the days of Neanderthal Man were found in Shanidar Cave in northern Iraq.

• A rock shelter occupied nearly 11,000 years ago was found in Illinois and determined to be the oldest dated Indian home east of the Mississippi.

• Evidence was reported to indicate that two great migrations, one of men and their new ideas about 1,000 B. C. and the other of ideas alone about 2,000 years later, were responsible for the cultural development of the native people of eastern and mid-western United States.

Here and There in the Coal Industry

• **ROCKY MOUNTAIN COAL MINING INSTITUTE** held its 51st Annual Meeting June 26-29 at Glenwood Springs, Colo. On the afternoon of June 28, with Bert Manley, executive secretary, Utah Coal Operators Association, presiding, and with Oscar A. Glaeser, vice president, United States Fuel Co., as chairman, the meeting was addressed by the following speakers: Dr. Charles J. Potter, president, Rochester and Pittsburgh Coal Co.—topic, "The New United States Fuel Policy—Fact or Fiction;" A. B. Foulger, vice president, Lion Coal Corp.—topic, "Western Coal Markets;" and Robert E. Hall, general Counsel, NCA—topic "Unnatural Gas Competition."

Robert L. Hair, general superintendent of fuel mines, Colorado Fuel & Iron Corp., was elected president of the Institute.

• **BIG SANDY-ELKHORN COAL OPERATORS ASSOCIATION** re-elected all officers and directors at the Association's annual meeting held June 16-17 at Lexington, Ky. In addition, two new directors were re-elected: C. D. Reed of the Turner Elkhorn Mining Co., Drift, Ky., and A. N. Cooley of the Cooley Elkhorn Coal Co., Wayland, Ky. Officers re-elected are President W. W. Goldsmith; ice President Virgil D. Picklesimer; Executive Secretary C. W. Davis, and Treasurer L. B. Brashear. Speakers at the membership meeting included Joseph Moody, president, Southern Coal Producers Association William Maddox, executive secretary, Property Owners' Committee, and H. B. Lammers, chairman, Coal Producers Committee for Smoke Abatement.

• **R. C. FITZGERALD**, who retired three years ago as vice president in charge of sales of West Virginia Coal & Coke Corp., Cincinnati, died at his home there on May 19. The company is a division of A. T. Massey Coal Co., Inc.

• **DR. ARNO C. FIELDNER**, dean of Government research scientists and internationally known authority on coal and related fuels, has retired from the Bureau of Mines after 48 years of service. Except for two years spent in directing research for the Army's Chemical Warfare Service during World War I, he has served continuously in the Bureau of Mines since its creation in 1910. Inventor, author, and developer of techniques used worldwide in testing and analyzing coal, coke and gas, Dr. Fieldner holds many awards for scientific achievement. In 1950, after eight years as director of the Bureau's fuels

• **VIRGINIA COAL OPERATORS ASSOCIATION**, in annual meeting at Norton, Va., elected the following director: R. H. Hughes, Clinchfield Coal Corp.; H. W. Meador, Stonega Coke and Coal Co. John Mayhew, Blue Diamond Coal Co.; J. B. Taggart, Wise Coal and Coke Co.; George H. Esser. Mr. Esser serves the Association as president, secretary, and treasurer; Mr. Hughes is vice president, and E. H. Robinson is assistant secretary-treasurer.

• **THE LORADO COAL MINING CO.**, Columbus, Ohio, has re-elected its officers and directors, headed by S. B. Johnson, chairman of the board. S. B. Johnson, Jr., is president; J. R. Johnson, vice president; R. L. Seith, secretary-treasurer, and L. K. Moench, assistant secretary-treasurer.

• **GLEN ALDEN REPORTS BIG BOOST IN EARNINGS.** Net earnings of the Glen Alden Corporation for the first six months showed continued improvement over the previous year, President F. O. Case reported to the company's stockholders at a special meeting held in Wilkes Barre recently.

• **SAFETY AWARDS.** Individual belt-buckle trophies from NCA went to Renton No. 1 Team of the Renton

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ROLL UP PROFITS



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CM-5

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No one can see it, but the engine research men at Caterpillar know exactly what's going on within these cylinder walls.

It's their job to see that the power you buy is the same efficient power, even after thousands of hours of profit-making work. It means research without an end . . . farsighted, yet applied to your immediate needs . . . demanding to the "nth" degree.

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• chemically treated to give hard-to-scratch surface, shorter break-in time, better oil film.



Piston rings • cast from iron especially alloyed for elasticity and resistance to high operating temperatures • heavily chrome-faced top ring helps make rings and liners last up to five times longer. Honed sides for better cooling, break-in and oil control.



Pistons • one-piece, aluminum alloy castings, minimum weight for most power output and longer life
• exclusive Cat-designed cast iron top ring band where heat and wear are greatest • all grooves machined to fine tolerance for perfect ring fit • stainless steel heat plugs in most models.



Piston pins • hardened and machine finished inside and out for greater tensile strength • full-floating type, precision-ground for smooth, snug fit. Liners, pistons, rings and pins rigidly inspected . . . good reason for new machine long life —and reason, too, for replacing with Cat parts.

CAT MOTOR GRADERS



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Wear resistant "heat zone" parts give you "power for pennies" on every job with the Cat Motor Grader. But Caterpillar economy doesn't stop there. You use non-premium, low-cost number 2 furnace oil . . . because of Caterpillar's exclusive, single orifice injection valve and pre-combustion chamber design. Starting's fast and easy, too . . . the entire cycle can be controlled from the operator's seat. And without taking his eyes off the road, your operator can choose the exact blade position he needs. All of these features combine to give you greater production, greater economy—reasons why you should own a Cat Motor Grader.

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Exclusive Cat precombustion chamber gives you power with a one-two punch in the Cat Diesel Tractor. One! The precombustion chamber only partially burns the fuel and air. Two! The gasified, already-flaming fuel mixture rushes with great, power-producing turbulence into the main combustion chamber where it is burned completely with every stroke. This "double burning" in Cat Diesel Engines means you get the power you bought . . . the power you want . . . for the job you're doing. Engine power is efficiently converted to drawbar power through a simple, direct power train.

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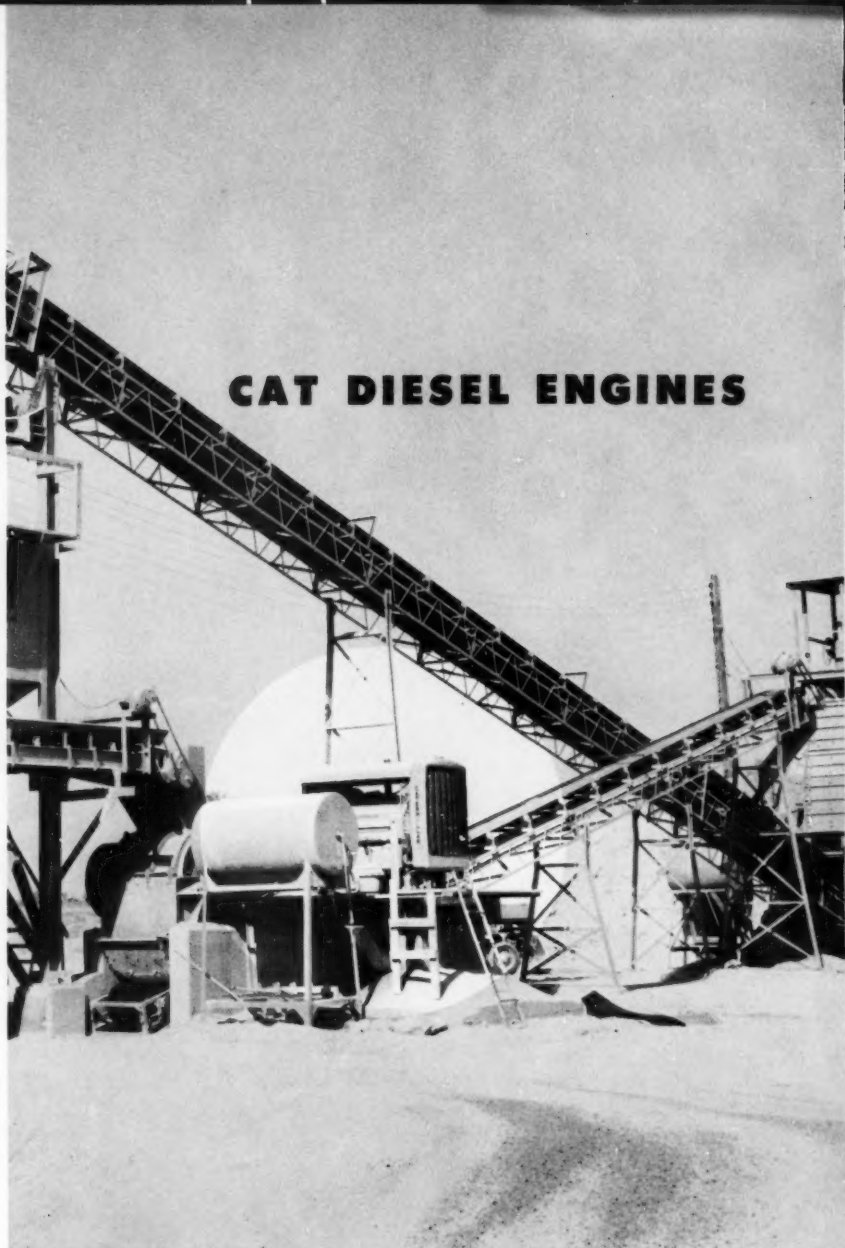
POWER

100,000 work hours is a record that few manufacturers can claim for their diesel engines. Yet, many Cat Diesels have rolled up such impressive work records . . . in shovels, cranes, compressors, crusher plants and other installations. Why? It's Caterpillar's firm promise . . . through relentless research, through most modern and exacting manufacture, through rigid inspection—to give you diesel power units that live longer, work harder for less. Caterpillar spares nothing to hold good its promise. We, your Caterpillar dealer, share that promise and invite you to hold us to it by matching your needs exactly from our complete line of honestly rated Cat Diesel Engines. See us for full facts!

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CM-5



Portal Building at Brown's Run is designed for maximum efficiency. Miners park their autos in lot at upper right and use stairway to enter building. Elevator shaft is reached by short corridor leading off main building.

M INERS L AMPS AT EMERALD MINE

Just as mechanized mining has brought greater efficiency to coal production underground, the adoption of streamlined methods for the movement of men into and from the mine also has resulted in substantial benefits.

Operations at Brown's Run Portal of Emerald Coal and Coke Company's Emerald Mine in Morgan Township, Greene County, Pennsylvania, offer conclusive evidence that careful planning and design of a portal building can achieve maximum efficiency.

Emerald opened the new portal in July of 1953, to locate the main entry 2½ miles closer to the working faces than the old portal. The building is designed around a self-service distribution system for miners' lamps. When the portal went into service, new Edison R-4 cap lamps and necessary charging equipment were furnished by Mine Safety Appliance Company.

Since the Edison self-service system has been in operation, according to Emerald management, there has been a major reduction in the time necessary to distribute lamps to the men. Emerald currently employs 600 men on a three-shift basis. Production is running about 5600 tons daily.



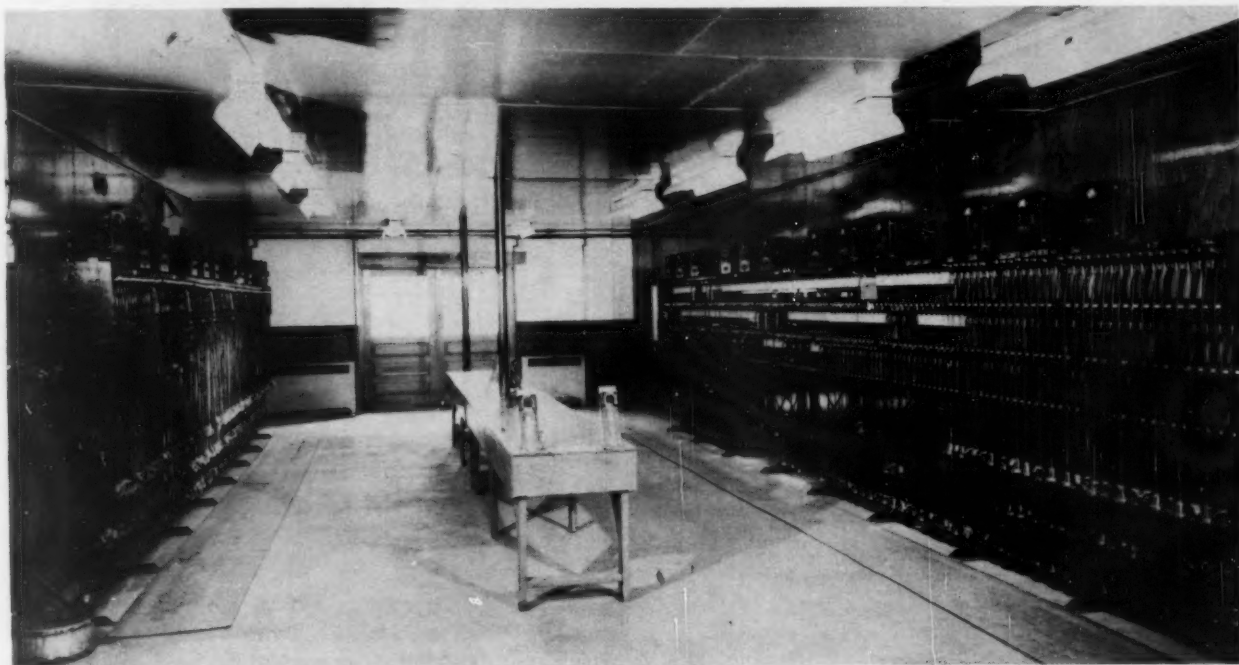
Superintendent of Emerald Mine is Thomas Lamb, shown here (right) with Dave Evans, general foreman.

One of the reasons the men appreciate the self-service system is because they lose no time between the parking lot and the elevator shaft. It takes a man only a few seconds to pick up or leave his lamp as he comes on or goes off his shift. There is no confusion and no waiting in line.

The portal building is designed so the men are under roof at all times between the elevator shaft and the double doorway that leads to the adjoining parking lot.

The concrete block building is 152 feet long by 41 feet wide. A 14-foot wide corridor leads 42 feet to the modern 900-foot-per-minute electrically operated elevator that operates in the 467-foot shaft.

The corridor is divided by a hand-rail to separate incoming and outgoing shifts. As soon as one group of 30 miners leaves the elevator, another group is ready to board. A safety bulletin case is located on a



Self-service lamp distribution system at Emerald has helped speed shift changes. Miners coming on or going off shifts pick up and leave their own lamps at the charging racks. From left, in this picture are Joseph Kreon, Harry Rutherford and Harry Walters.

large bulletin board in the corridor near the waiting area so it can be easily seen. Above the elevator is an illuminated flasher-type sign which spells out safety messages. The company slogan "Be Careful Today, Buddy" is the last thing the miner sees as he steps onto the elevator.

In an area that runs about 60 feet between the entrance to the elevator corridor and the doorway to the parking lot, is located the lamp distribution center. Charging racks are positioned against the wall on both sides of this 16-foot wide area, and a bench 26 feet long is stationed in the center. Thus, incoming and outgoing shifts are separated by the bench on which flame safety lamps are deposited by the men leaving the mine. Four magnetic openers for the Edison lamps are fixed to the bench.

In addition to the economy and speed of the self-service lamp distribution setup, abuse to the lamps also has been cut down. The men, management said, seem to handle their individual lamps more carefully.

Cost of operating the self-service lamp system, in comparison with Emerald's previous method of standard



Shifts change without confusion at Brown's Run Portal of Emerald Mine. The corridor leading from modern portal building to the elevator shaft is divided by a hand rail to separate incoming and outgoing shifts.



Routine maintenance of Edison R-4 lamps at Emerald Mine gives the assigned and responsible shift attendant an opportunity to clean and inspect the lamps which, the mine officials explain, are vital production tools in underground operations. Here, Emerald's Division Engineer M. G. Bower (left), watches Lampman Thomas Craig water batteries with an automatic filling device.

Magnetic battery case openers are located conveniently in the lamp room so miners can quickly unlock the cases before inserting the batteries in the charging rack.



Self-service lamp distribution system at Emerald has helped speed shift changes. Miners coming on or going off shifts pick up and leave their own lamps at the charging racks. From left, in this picture, are Joseph Kreon, Harry Rutherford and Harry Walters.



Taking no chances on underground lamp features, Emerald maintains a well-equipped lamp maintenance room for replacement of broken lenses, bulbs and other parts. Only one attendant is required on each shift to operate the self-service lamp distribution system and the maintenance program. And the attendant spends only part of his time on lamps. He has other duties as well.

distribution, is substantially less according to mine officials.

Only one man per shift is needed for the entire lamp room operation. This employee also maintains about 45 flame safety lamps per shift; operates the supply room where safety equipment, drill points and other tools and materials are passed out; serves as attendant for the ventilating fan, and performs miscellaneous other duties.

Like any other important piece of equipment used in mining, cap lamps must be under responsible supervision for routine maintenance because Emerald's management takes no chance on having lamp failures underground.

Adjoining the charging rack area is a 20-by-11-foot room where the portal attendant performs his duties. This room is fitted out with a workbench and supplies of spare bulbs,

lenses and parts for quick and easy maintenance of the lamps. In watering the Edison batteries once a week, the attendant merely lines them up on the long bench in the charging room and uses an automatic filling device to add distilled water. Because the valve block for the four-celled Edison B-4 battery is removed by two turns on one screw, filling the batteries requires a minimum amount of time. One advantage of this weekly operation is that the attendant has the opportunity simultaneously with watering, to clean and inspect the lamps. This is an assurance the lamps will remain in top operating condition.

Emerald designed an interesting arrangement to handle flame safety lamps. They are hung on a "Christmas Tree" device which consists of a series of wheels, the largest six feet in diameter, revolving around a fixed post. After the attendant fills

(Continued on Page 18)



On a recent inspection trip at Brown's Run Portal W. G. Stevenson (left), Emerald's General Manager of Mines, explains the self-service lamp distribution system to W. L. Affelder (center), Emerald vice president, and George H. Deike, board chairman of Mine Safety Appliances Company, which supplied Edison R-4 cap lamps used at the mine.



Power take-off driven Davey Model M-8A Rotary Air Drill drilling blast holes on high wall at James E. Hoffman's, Karthaus, Pa.

LEADING MINES EMPLOY ROTARY DRILLS TO SPEED PRODUCTION

Every year since World War II, coal mining has benefited through the introduction of new and better machinery. This year has been no exception. Bigger, more powerful tractors and shovels are available for strip mining, while fast-acting, tough automatic miners are speeding up shaft operations.

All of the advancements are not exclusively confined to earth moving equipment. One of the most important is the new Davey Model M-8A Rotary Air Drill, which is being used on an increasingly large number of strip mines for blast hole and core work. Also, several units are now employed by shaft as well as strip operators for exploration.

It is both significant and appropriate that these new truck mounted machines are manufactured by Davey Compressor Co., Kent, Ohio. This company has an enviable record of pioneering in both compressed air and truck mounted equipment which dates back more than 30 years.

In 1922, Davey introduced the first air cooled air compressor. This was

followed by the Davey "Auto-Air", a truck-mounted air compressor which opened a new era of power take-off driven compressed air.

The "Auto-Air" was unique at its inception. Instead of drawing power from an auxiliary engine, the compressor was driven by the truck's engine through a Davey heavy-duty power take-off mounted in the drive-shaft. Widely used by public utilities and municipalities, the "Auto-Air" found an instant market because of its extreme portability and compactness. Today, there are more Davey "Auto-Airs" in service than all other makes combined.

As is readily apparent, the rotary air drill retains the "Auto-Air" concepts of portability and compactness. Each unit carries all the tools and equipment necessary for the average drilling job, whether it be blast hole, water well or coring. And, after completing one job, the M-8A can be made ready in a few minutes for an over-the-highway trip to the next location.

Quick drilling and fast set-ups are important parts of any successful operation. The M-8A does both. Being truck mounted, there is no complicated drill rig to set up and tear down for each hole. Instead, the entire unit can be moved from hole to hole as soon as all pipe has been pulled. For short distances, it is not even necessary to lower the mast.

The rapid drilling speed of the M-8A depends to a great degree upon its "air-blast" technique of cleaning out cuttings. This method, whereby cuttings are blown to the surface by a blast of air sent down the drill pipe, eliminates danger of build-up in the hole and, as a result, permits an even drilling rate.

Typical blast hole drilling operations are those at Lingle Coal Co., Shawville, Pa., and James E. Hoffman's mine near Karthaus, Pa., where Davey Rotary Air Drills are in daily operation. Both jobs are somewhat similar in that they require stripping of from 40 to 60 feet of overburden to reach the coal seam. With draglines, shovels and bulldozers, in many

cases, working around the clock, it is important that blast holes be dug fast. This calls for a combination of good operators and efficient equipment.

At Lingle and Hoffman, holes are drilled from 15 to 25 feet apart and about 35 feet deep. The average hole is completed in approximately 20 minutes with another 10 spent for extracting pipe and moving the few feet to the next hole site.

In most cases, rotary drill operation is done on a two-man basis, like that at Lingle. Usually, one man operates the controls, while the other handles pipe. At Hoffman, however, one operator is doing both jobs efficiently.

Although several mines employ their own rotary drills for exploration work, much of this type of work is done on a contract basis with Stockdale Equipment Co., Frostburg, Pa., Davey distributor for West Virginia and Pennsylvania. Stockdale keeps two drills on hand at all times to fill just such requests.

The M-8A is adaptable to mounting on any truck having a capacity permitting a gross vehicle weight of between 20,000 and 26,000 pounds. For operation in rough terrain and on rutted access roads, tandem rear axles are preferred. The Lingle and Hoff-

man machines are mounted on tandems.

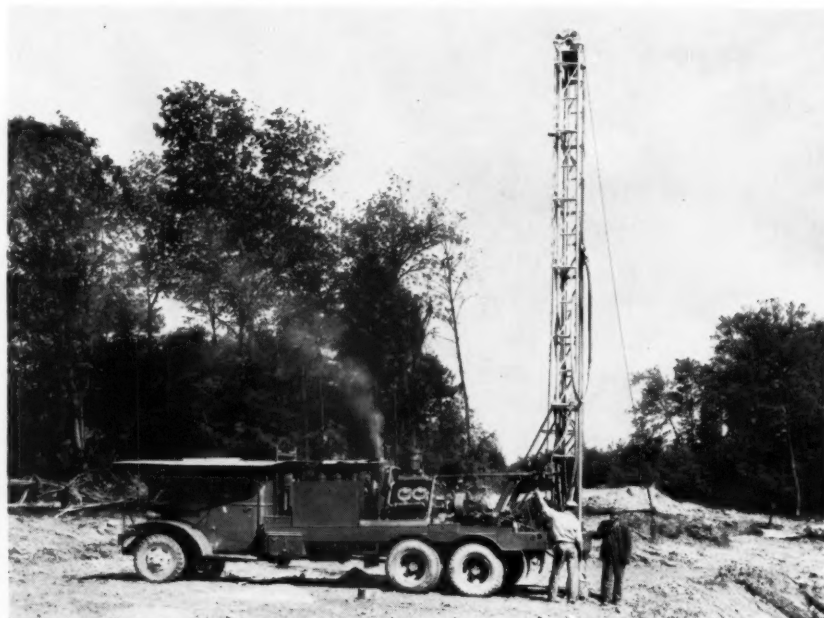
To properly understand how the M-8A works, it is necessary to know how some of the important components function.

Two power options are offered—Davey heavy-duty power take-off or an auxiliary engine. Initial investment for power take-off is many times less than for an additional engine. However, operating economies of a properly selected second engine will in many cases more than pay for the difference in original cost.

The auxiliary power unit or power take-off is connected to the power



Close-up of Davey M-8A showing rotary table, kelly, cuttings deflector, etc.



Davey Rotary Air Drill with auxiliary power unit at Lingle Coal Co., Shawville, Pa.

in-put shaft of the transfer case, which in turn distributes power to all mechanically-driven running parts of the drill. The transfer case embodies four shafts, known respectively as: (1) power in-put shaft, (2) compressor shaft, (3) draw-works shaft and (4) pull-down shaft.

Connected directly to the in-put shaft on the rear side of the transfer case is the transmission for the rotary table drive, a chucking device for rotating the kelly drilling rod. The engine throttle, transmission clutch and transmission gear shift give the operator complete charge of regulating drilling speeds, starting and stopping.

The rotary table itself is bolted directly to the truck frame in the center of the extreme rear in line with the drill mast. Power from the rotary table drive passes through a set of gears to rotate the inner sleeve or quill. The quill in turn drives the kelly drive bushing which keys to and rotates the kelly bar.

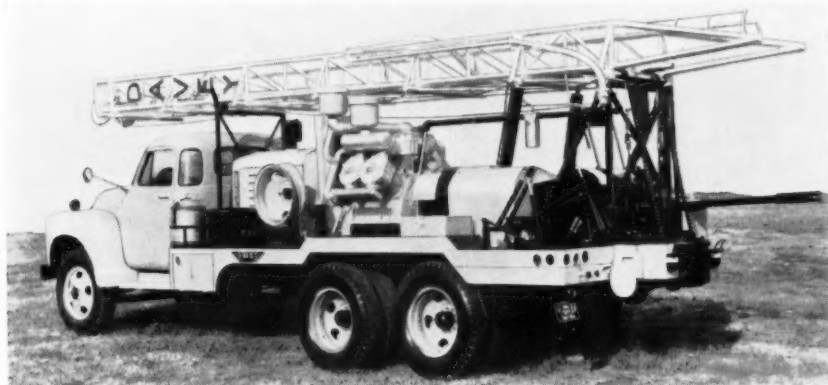
The compressor shaft leads directly forward to a Davey Model X-400 Air Compressor capable of supplying 500 cubic feet per minute. A triple plate friction clutch engages and disengages the compressor drive.

The draw-works shaft of the transfer case supplies power to the draw-

works located adjacent to the rotary table. Made up of a two-drum hoist, the draw-works controls the lifting and lowering of pipe. Each drum works independently, one for hoisting, the other for pick-up. Cables from both drums are strung through sheaves mounted at the top of the mast in a steel fabricated crown block assembly.

The hoisting line after leaving the sheave is connected to a yoke which is linked to the kelly by a swivel. Besides permitting the kelly to rotate freely, the swivel serves as the air connection between the compressor and the kelly.

Located directly over the rotary table, the mast supports the yoke, crown, kelly and weight of all operations. It rises 28 feet above the rotary table or about 33 feet above ground. This allows plenty of room for pulling the 18½-foot kelly and 15-foot lengths of pipe. Guide rails located in the mast prevent the yoke from whipping and hold the kelly



Davey Model M-8A ready to travel. With mast lowered, this unit travels at normal highway speeds.



Right side view of Davey Rotary Drill at Lingle Coal Co. This unit is equipped with a Rotoclone cuttings deflector which throws dust forward and away from operators.



Operator prepares power take-off driven M-8A for blast hole work at Dubois Mining Co., Dubois, Pa.

in line with the hole. Raising and lowering of the mast is accomplished by two hydraulic cylinders driven by a hydraulic pump connected to the opposite end of the pull-down shaft.

The pull-down shaft of the transfer case leads to a worm gear winch, which drives the pull-down chain assembly. Consisting of two half-chain, half-wire rope lines, the pull-down assembly exerts down pressure on the kelly. Actually, pressure is applied by the chain connected to the bottom of the yoke. The wire rope runs through two sheaves in the mast crown to two springs at the top of the yoke. The springs help compensate for unusual shocks or quick peak loads.

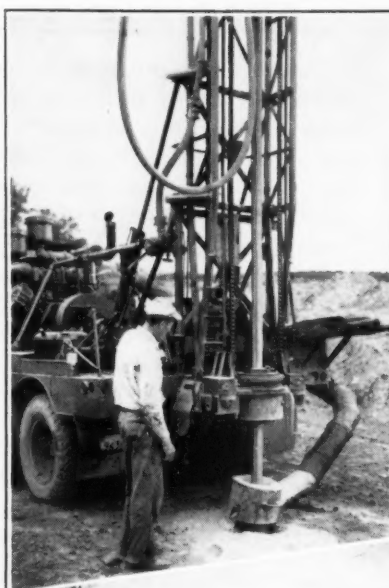
Operation of the M-8A is not nearly as difficult as might be imagined of such a complicated-appearing piece of equipment. All necessary controls and gauges are handily located in a group to the left of the rotary table. An experienced operator thus can keep a careful eye on drilling progress and make adjustments as conditions change.

First step after selecting the site for the hole is putting the truck in position and blocking the wheels.

Next, the auxiliary power unit is started or the power take-off engaged. Then, after setting the proper gears, the mast is raised by the hydraulic lifting cylinders. Once in a vertical position, it is locked in place.

When the mast is up, the kelly is fitted with the proper drill bit. The rotary table is then engaged to start the kelly turning. A slight pressure is exerted from the pull-down to start the descending thrust. After the operator has made sure the drill is going straight down, the kelly is drawn out and the cuttings deflector put over the hole. The kelly is again lowered and drilling begins.

Davey has published a group of manuals which explain in detail the operation of the M-8A, from the use of the right lubricants to the selection of proper drill bits. Another booklet, edited by Davey, describes the various rock formations encountered in drilling and gives instructions on how to handle them.



Davey Rotary Drills at Lingle Coal Co., Shawville, Pa.



cut drilling costs!


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Left: William R. Devett, The Berwind White Coal Mining Co.; Sam Given Jr., Imperial Coal Corp.; George Schweinbraten, Westinghouse Electric Corp.; Donald Lambing, Beth Mines; William A. Davis, Socony-Mobil Oil Co.; Myles E. Altimus, Jr., Penn State University.

Left: J. C. Maleck, General Electric Service Shop; Joe Kavanaugh, Toastmaster and Sales Manager for Radio Station WARD, Johnstown, Pa.; A. E. Molinski, Supervisor Maintenance, Bethlehem Mines Corp.; J. W. Hunt, Associate Professor in charge of mining, Penn State University; Michael Balya, Reitz Coal Co.

ANNUAL BANQUET OF THE JOHNSTOWN BRANCH OF THE ELECTRO-MECHANICAL MAINTENANCE ASSOCIATION



Left: D. C. Jones, Director Mineral Industries Extension Service Penn State University; R. E. Frick, Penn Machine Co.; Merle I. Campbell, Ebensburg Coal Co.; William Doyle, Pennsylvania Electric Co.; John H. Newcomer, Bird Coal Co.



Carl Lantzy, Mosebach Electric Co.; Charles Replogle, Flood City Brass & Electric Co.; Bill Beck, Bethlehem Mines Corp.; Jerome C. White, Division Superintendent, Bethlehem Mines Corp.

Left: Russell Joseph, Earl Kimmel, Edward Horton and Fred Robson, all from mines 73 and 74, Bethlehem Mines Corp.

The Annual Banquet of the Johnstown, Pennsylvania Branch of the Electro-Mechanical Maintenance Association was held at the Vets Club in Johnstown, Pa. As the name implies, this association is devoted to the maintenance of coal mining machinery and its method of operation.

It is being made clearer that conventional mining is now undergoing radical changes. Due to recent large-scale miner lay-offs, the impact of

continuous mining today—fully automatic mining tomorrow—is just beginning to be realized.

Great tasks are generally undertaken first by larger segments of an industry for only they have the finances, the quick technical knowledge and management required in such difficult undertakings. The kind of program with which we are confronted requires also the mobilization of many smaller mines whose contri-

butions to experience and whose skills and talents are essential to the whole.

Automation is normally a series of continuous mechanical operations. In coal mining the newest electronic techniques known will have to be employed to control each phase of the entire operation. The best known phases of technology will have to be used along with some new, ingenious ones that do not yet exist. Steps in the process will have to be designed



Left: George Wagner, Bethlehem Mines Corp.; J. Ackerman, Pennsylvania Electric Co.; John Pabrazinski, Imperial Coal Corp.; Matt Jarvi and I. C. Wilhelm, Imperial Coal Corp. Standing is J. F. Mulvihill, Pennsylvania Electric Co.

Left: George Commons, Edward Connor, Howard Schweinebraten, Wesley Shaner, Don Lambing, Jr., all from Mine 31, Bethlehem Mines Corp., Nanty-Glo.



Left: Harry Sidwar, Tom Smith, George Shannon, David Gates, Walter Angert, Joe Sasway, Frank Erhard, all from Ebensburg Coal Co.

to take the output through one stage of transportation and deliver it in the desired quantity at the succeeding stage. Controls will have to be precise along the whole way to make the system practical.

Without an exchange of ideas and the resulting cross-fertilization new developments would not come about. We need organizations like the Electro-Mechanization Association to funnel the cross fertilized new developments into their proper channels at the proper times.



Left: Harry Boyer and Paul Shaffer, Berwind-White Coal Mining Co.; Albert Bortolomucci, Reitz Coal Co.; Joseph Gallucci and R. S. Fishburn, General Electric Co.

Left: John Toth, Toth & Kenecht Coal Co.; J. F. Hornick; P. A., Imperial Coal Corp; Rod Shannon, Quaker Sales Corp.; R. C. Barr, Imperial Coal Corp.; Wasil Wasdi, Imperial Coal Corp.



Left: James A. Caldwell, Cardiff Imperial Coal Corp.; O. A. Schwamke, Hulbert Oil & Grease Co.; Alex Wilson and Eddie Potthoff, Westinghouse Electric Corp.; Al Overdorff, Quaker Sales Corp.

Left: Charles Kaeczey, Kaeczy Service Co.; O. M. Hall and Harry Blough, Reitz Coal Co.; Harry Lehman, Flood City Brass & Electric Co.

New Coal Mine for Kentucky

Mr. Courtney Quirey, President of the DeKoven Coal Mining Company, announced that the company will commence construction of a new deep mine at DeKoven, Kentucky, completely mechanized and using belt haulage.

The mine will have an ultimate capacity of 1,000,000 tons per year and when it reaches capacity will employ approximately 300 men. The underground operations will operate two shifts per day and the preparation plant single shift.

The main slope, which will be approximately 1,000 feet long, will be driven to the Kentucky #9 coal having a thickness of five feet in this area. Future plans provide for the eventual mining of the #6 seam which is 4'6" thick and lies some 250' below the #9 seam.

The coal will enter a rotary breaker at the mine portal where it will be crushed to 3-inch top size and passed to a belt conveyor which will carry it direct to the preparation plant or to raw coal storage. The preparation plant will be of the most modern design capable of processing 1,000 tons an hour. It will be of closed circuit design which will permit the removal of the solids from the water.

Facilities will be provided for loading the washed coal on both rail and barges. The Illinois Central Railroad will service the mine and the barge loading facilities will be located on the Ohio River.

After leaving the preparation plant the coal for river transportation will be taken to a washed coal stockpile with a capacity of 20,000 tons. There will be a 42-inch conveyor belt approximately 6,000 feet long from this stockpile to the barge loading facilities on the Ohio River.

Mr. Quirey, who will be in charge of operations, will be assisted by Mr.

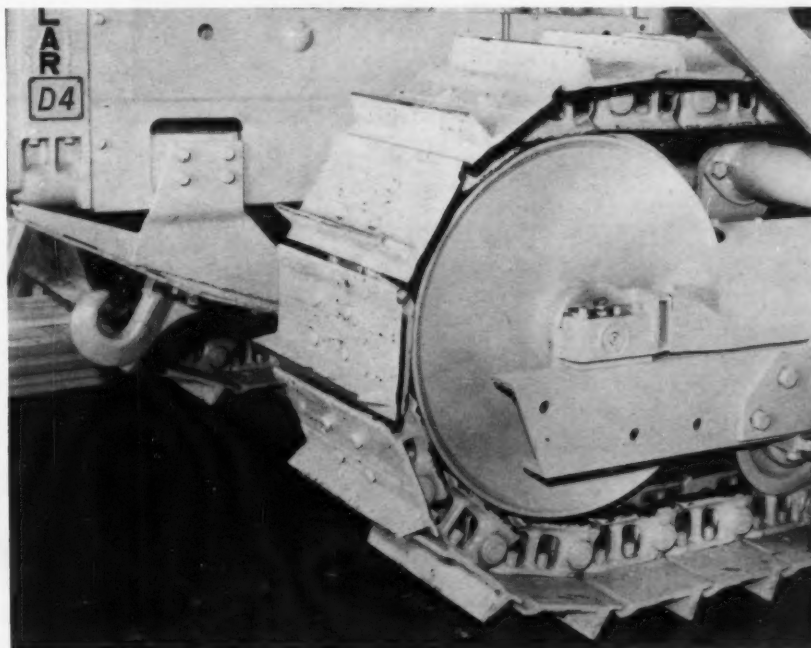
Davis Read, Consulting Engineer of Chicago, in the planning and operation of the mine. Mr. Doyle Whitmer will be mine engineer and Mr. Hugh Stewart will be chief clerk.

The mine will produce coal from properties formerly controlled by the Ohio Valley Coal Company, The Madison Coal Company and adjacent land owners. The mine is expected to be completed and in operation by the summer of 1956. The Pittsburgh & Midway Coal Company of Chicago will be sales agent for the DeKoven Coal Mining Company.

Mr. Quirey stated that construction on the new mine will start in the near future and a labor force of considerable size will be required to complete the project.



HD-16AC with AC Blade. East Fairfield Coal Co., North Lima, Ohio.



Large disc-type idler for Caterpillar D4 Tractor now offered as attachment in place of the former cast spoke-type idlers.

Recent improvements in Caterpillar Tractor Co.'s expanding line of earthmoving machinery have just been released. Large idler groups, which are now offered as attachments for the D4 Tractor, will be changed to the fabricated disc-type. The groups will continue to be offered as attachments.

The fabricated idlers are wider than the cast idlers and have hardened rims to give longer service life. Tangling of branches, mud packing, etc., is avoided with the elimination of spokes. This improvement has been added at no increase in price of the attachment.

The standard D4 Tractor will include the smaller idler groups of the spoke-type. Special D4 arrangements which include the large idler groups will be changed to include the large idler groups of the disc-type. There will be no increase in price.

Larger, rigid-type push blocks are now included in the company's No. 70 Scraper and No. 15 Scraper at no increase in price. The larger pushing surface will provide a greater contact area for the pusher bulldozer blade—adding further protection to the scraper tires and ejector system.

EASTERN OHIO COAL OPERATORS

MEET FOR GOLF



Left: R. W. Stevens, Price Waterhouse & Co.; C. E. McLaughlin, Bituminous Coal Research; Joe Bogan and Ed Fish, Cleveland Rock Drill Co.; Bob Edgar, Watt Car & Wheel Co.

Gatherings like the Eastern Coal Operators golf parties, held in June at the Belmont Country Club near St. Clairsville, Ohio, promote cul-



Left: Wm. Noel, Dist. Mgr. Cardox Corp.; Tom Patterson, Supt. Warner Collieries Co.; Andrew Milarcik, Supt. and Wilford Patterson of the Columbia Southern Chemical Co.; Domenick Slanetuna, Ohio State Mine Insp.; Sam Manson, Gen. Mine Foreman, Warner Collieries; John Orlin, Oglebay Norton Co.; C. S. (Pat) Winters, Supt. Powhatan Mining Co. Paul C. Manley, Sales Eng. Cardox Corp.



Left: C. E. (Jim) Compton, Pres., Compton, Inc.; Donald D. Saxton, V. P. Grafton Coal Co.; Andrew Hyslop, Jr., Hanna Coal Co.; R. G. Mabley; Gene Jenks, Hanna Coal Co.; Guy Rupp, Virginia Mining Co.; Geo. Nicolazakes.



Left: C. M. Garbo, Supt., V. H. Forsythe, Elec. Eng. and Robt. Morris all of the Powhatan Mining Co.; John E. Ehlert, Euclid Div. General Motors Corp.; Lou Aikin, W. W. Williams Co.; Emmett T. Lang, North American Coal Corp.; Ken Ross, W. W. Williams Co.

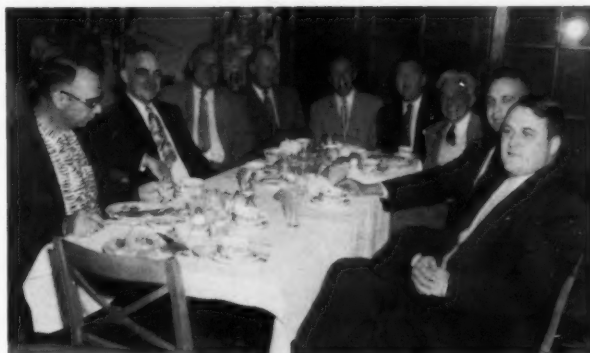


Left: E. J. Deenihan and E. E. Springer, Goodyear Tire & Rubber Co.; C. C. Cullen, Hanna Coal Co.; P. C. Strassner, Goodyear Tire & Rubber Co.; J. W. Risher, Tri-State Rubber Sales Co.

tural advancement among coal mining men. Prizes contributed by manufacturers and suppliers were given as golf and door prizes.



Left: Hardy W. Beck, Ryerson Steel Co.; Tom Durbin, D. S. Kleckner and L. B. Kennedy, Hanna Coal Co.; Gordon Farrell, Ryerson Steel Co.



Left: Bert Robinson, Ohio Machinery Co.; Ed F. Dunning, Crescent Valley Mining Co.; Richard Graham, Saginaw Dock & Terminal Co.; Richard C. Swartzbaugh, Allegheny Ludlum Steel Corp.; Robert Branz, Crescent Valley Mining Co.



Ford Sampson, Ohio Coal Operators Assn.; W. E. Corbett, Saginaw Dock & Terminal Co.; J. W. Milam, Joy Mfg. Co.; Alex. Grant, Buckeye Coal Co.; Hugo Niquist, Joy Mfg. Co.; Ed Lee, Lee Supply Co.; W. S. Peters, Jr., Stimple & Ward Co.; L. D. Gent and C. S. McDowell, Joy Mfg. Co.

(Continued from Page 8)

and cleans the flame safety lamps, he places them on the wheels where they can be picked up by men on the incoming shift.

All machinery for the mine—motor generators, air compressors, etc.—is located in a building detached from the portal structure. Audible and visible signals for the ventilating fan operation and circuit breakers are located in the lamp repair room and in the charging room where they can be heard and seen continuously by the attendant on duty.

In addition to the self-service lamp distribution center, the portal building houses offices for the payroll department, mine superintendent and foreman. A modern, well-stocked company store occupies about 650 square feet in the building. A well-equipped first-aid room is located adjacent to the waiting area at the building end of the elevator corridor.

Over and above the economies resulting from adoption of self-service lamp distribution at Emerald, one of the major benefits of this system has been the attitude of the men towards it. Being able to head home-ward quicker after their shifts are over certainly makes them happier, officials of the mine reported.

Greensburg-Connellsville Coal & Coke Company

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Good condition

Ford ½-ton Pick-up Truck

Ford ½-ton Pick-up Truck

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1201 Lima Hi-Lift diesel shovel, 42' boom, 32' stick, 2½-yard dipper.

3500 Manitowoc Hi-Lift diesel shovel, 45' boom, 35' stick, 2-yard dipper.

111-M Marion Hi-Lift diesel shovel, 43' boom, 34' stick, 3-yard dipper.

40-A Marion Hi-Lift diesel shovel, 45' boom, 34' stick, 2½-yard dipper.

450-W Bucyrus-Erie diesel dragline, 165' boom, 13-yard bucket.

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5W Bucyrus-Erie diesel dragline, 125' boom, 5-yard bucket.

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4500 Manitowoc diesel dragline, 120' boom, 5-yard bucket.

1055 P & H diesel dragline, 80' boom, 4-yard bucket.

1201 Lima diesel dragline, 85' boom, 3-yard bucket. Independent boom hoist.

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Item 453-P121 Caterpillar Model D-17000 Engine. Rebuilt and guaranteed. F.O.B. Pittsburgh, Pa.

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Item 255-E152 Cat. D315 diesel engine. Rebuilt except starting motor. Fan to flywheel arrangement. F.O.B. Erie, Pa.

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Item 853-WV101 Allis-Chalmers Model HD10W diesel tractor. Mount with Baker Hyd. Operated straight bulldozer. Equipped with crankcase guard, front pull hook and track roller guards. F.O.B. Clarksburg, W. Va.

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- 3—Jeffrey 10-ton, type MH-78, 42" and 44" Ga.
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- 2—Jeffrey, 4-ton, type MH-96, 42" and 48" Ga.
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- 3—Goodman 512 EJ Cutters.
- 15—Goodman 12AA and 112AA.
- 2—Goodman 224 Slabbers.
- 2—Goodman 724 Slabbers.

LOADING MACHINES

- 12—Joy Loaders, all types.
- 1—Jeffrey 61 CLR on rubber, 26".
- 2—Jeffrey 43L Shortwall Loaders.
- 3—Jeffrey L-500 Loaders.
- 2—Goodman 360 Loaders.
- 4—Myers Whaley No. 3 Automat Loaders.

CONVEYORS

- 10—Jeffrey 61 HG Face Conveyors.
- 12—Jeffrey 61 AM Room Conveyors, 300'.
- 4—61EW Elevating Conveyors.
- 2—61 WH 15" Room Conveyors.
- 1—Joy 30" Belt Conveyor.
- 4—Joy Ladel UN-17 Shakers.
- 10—Goodman G-12 1/2 and G-15 Shakers.

DIESEL PLANTS AND CONVERTERS

- 1—75KW, G. M. C., 6-71 DC.
- 2—Superior, 100KW, DC.
- 1—Cummins, 125 KW, DC.
- 1—Allis Chalmers, 200KVA, AC (Natural Gas).
- 2—100KW, G. E. TCC-6 Rotaries.
- 2—150KW, G. E. HCC-6 Rotaries.
- 2—200 KW, G. E. HCC-6 Rotaries.
- 1—200 KW, Allis Chalmers Rotary.
- 1—300KW Westinghouse.
- 1—400KW, G. E. Rotary.
- (All the above with 2300/4000 and-or 6900/13000 primary transformers.
- 2—150KW MG Sets, G. E. & Westinghouse.
- 1—200KW, MG Set, Westinghouse.
- 1—300 KW, MG Set, Westinghouse.

ROCK DUSTERS

- 1—MSA hi pressure on rubber.
- 1—MSA hi pressure on skids.
- 1—MSA low pressure Room Duster.
- 1—MSA hi pressure track mounted.
- 1—Canton Distributor, lo pressure.
- 1—Canton hi pressure, track mounted.

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- 400 Mine Cars, Drop Bottom and End Dump.
- All Gauges.
- 2—Brown Fayro HKL and HGD Car Spotters.
- 1—12-ton Differential Slate Larry.
- 4—Overhead Bridge Cranes.
- 1—Kanawha Hillside Dump.
- 1—16-Yd. Dragline Bucket.
- 5—Low Vein Water Cars.
- 4—3,000 Gal. Tanks, like new.
- 5—9,000 Gal. Tanks. Perfect.
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- Machine Tools for Mine Shops.
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- 30 Tons Copper Trolley and Feeder.
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- 400 Electric Motors, 3 to 200 H.P.
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Advertiser's Index

Allis-Chalmers—Tractor Division	2
Anderson Equipment Company	18
Beckwith Machinery Company.....	Insert Between 4 & 5
Agency Hosler Advertising	19 & 20
Caterpillar Tractor Company	Insert Between 4 & 5
Agency—Thompson Advertising, Inc.	
Cleveland Rock Drill Division	Inside Front Cover
Agency—Hoffman & York, Inc.	
Davey Compressor Co.	9, 10, 11 & 12
Agency—Palm & Patterson, Inc.	
Euclid Division of General Motors Corp.	
Agency—Richard Brandt, Inc.	
	Inside Back Cover
Highway Equipment Company.....	Front & Back Cover
Agency—Palm & Patterson, Inc.	
J. T. Fish Company	19
L. B. Foster Company	18
Agency—Lando Advertising	
Greensburg-Connellsville Coal & Coke Company.....	18
Licking View Tool & Machine Company.....	3
Lusk Co., Harold C.....	3
Meyer Brothers	18
Moore-Flesher Hauling Company	3
Ohio Machinery Company.....	11
Agency—Hosler Advertising	
Salem Tool Company, The.....	1 & 3
Agency—Meek and Thomas, Inc.	
Frank Swabb Equipment Co., Inc.....	18
Walker Machinery Company	19 & 20
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In the anthracite fields of Pennsylvania Rear-Dump "Eucs" outnumber all other makes of off-the-highway units combined... more than 800 of them are working in these open pit mines. Because of their unequalled record of high production and low hauling cost, it was only logical "Eucs" were selected by Wadesville Production Co. Twenty of them, ranging in size from 22 to 34 ton capacity, are at work on this huge stripping operation.



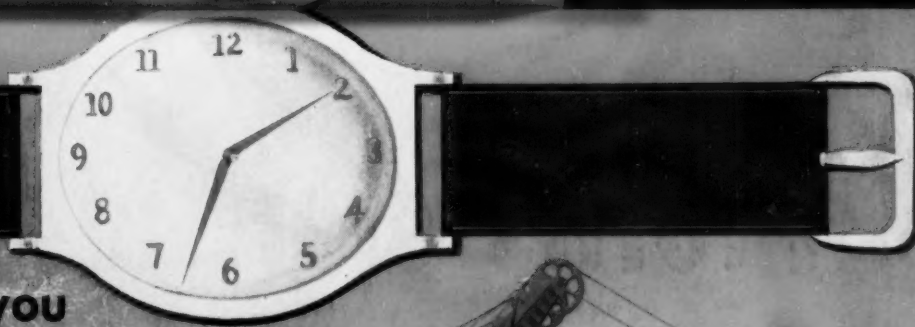
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Maumee Collieries Co. of Indiana uses four 40-ton Euclid Coal Haulers to haul from the pit to the plant at Mine No. 28 near Jasonville. Loaded haul of 5000 feet takes just over 4 minutes and a complete cycle, including loading which requires 4.4 minutes, is made in 16 minutes or less. "Eucs" are also working at two other mines of this big producer... Maumee has been a Euclid user since 1946.



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